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Agricultural Yards in Rural Areas in the Context of Sustainable Development – The Example of Gornjane Village

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Abstract

BACKGROUND: The villages and the rural areas in Macedonia, in conditions of continuous radical socio-political changes in the last two centuries, experience great discontinuity in the planning and development of the space, ie formation of a recognizable architectural – urban form and its own cultural – anthropological individuality. One part of the reasons for the current situation is that in this period Macedonia has existed and developed as part of three fundamentally different socio-political systems: an absolutist monarchy (Ottoman Empire – the second half of the XIX and the beginning of the XX century), socialist republic (S.F.R. Yugoslavia – from 1943 to 1991) and multiparty democracy (R. Macedonia – from 1991 until today).

AIM: This paper analyses the historical development and current state of the various sustainability elements at the level of a village, and then at the level of a representative sample of the households i.e. agricultural yards, according to previously defined sustainability parameters.

METHODS: The analysis of natural, spatial, economic and human resources creates the picture of the existing situation but also provides insight into the potential for development and possibilities for sustainability.

RESULTS: The subject of the research will be the agricultural yards in the village of Gornjane. This village is considered as an old settlement in the area of Skopska Crna Gora. The village is hilly and is located at an altitude of 580 meters and it is 17 kilometres away from the city of Skopje. The traffic connection with the city of Skopje is relatively good, and because of that in recent years it has started to transform from a traditional agricultural village towards a cottage village with houses built by people who live in the city.

CONCLUSIONS: Although currently the village of Gornjane is economically weak and without a clear development policy, it still has enough natural and human resources to become developed rural area. The results of the analysis should be the basis for the future development and transformation of the agricultural yards and households in the direction of future sustainable development.

Introduction

Research on Macedonian villages compared to research on Macedonian cities in the architectural-urbanistic sense is scarce and therefore more intensive work on that problem is needed in the future. As a result of such a situation, the villages and rural areas are lagging behind the cities today to a great extent, and some of them can no longer even follow the current socio-political development. In this paper, an attempt has been made to study the sustainability of rural areas through the example of the village of Gornjane.

Sustainable development is the overarching paradigm of the United Nations. The concept of sustainable development was described in the Brundtland Report of 1987 as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [1].

In rural areas in Macedonia, which cover about 87% of the total area of the country, 45% of the total population lives. Agriculture is the most important economic activity in rural areas, which affects the alleviation of poverty and unemployment [2].

From this it can be concluded that the sustainability of rural areas is to the greatest extent based on their own capacities, which Turnšek defines as factors of village sustainability: village atar, population, infrastructure, living conditions and existing condition of households and facilities in agriculture yards. Sustainability factors give a picture of the existing situation and define the general framework of households through quality of life and work parameters [3].

The purpose of this research is to better understand the current state of Macedonian villages and to assess the potential for development and the possibilities for sustainability. The research should

also create a new methodology that should help to find and emphasize the good sides of villages and rural areas, all with the aim of creating correct development patterns in the best possible way in the future. The concept of sustainable development of villages must rely on their own capacities because otherwise there is a great chance to destroy the most valuable aspects of rural environments such as the natural landscape and the inherited ambient values of vernacular architecture.

History of the village of Gornjane

The village of Gornjane got its name because it is located on a higher ground than the neighboring villages of Banjane and Chucher in the Municipality of Chucher-Sandevo. Gornjane is considered an old settlement in the area of Skopska Crna Gora. According to tradition, the village was first located 500 meters west of today's location. The settlement of Radunac is located there. However, during the Ottoman period, the locals abandoned that village because it was located along the old Skopje-Kačanik road and was often attacked by the Muslim Arbanasi. Until the end of the Turkish rule in 1912, the village suffered attacks by Muslim residents and did not receive protection from the state. The inhabitants of the village acquired their own land only in 1925, when the state authorities granted them land in the atar of the villages of Orman and Volkovo. The current location of the village is amphitheatrical, in the immediate vicinity of the monastery "St. Nikita". The residents were supplied with drinking water from two fountains built in 1926, while to the north of the village, springs such as Vrbica, Studeno, Mokra Livada, and others emerge. Livestock farming was the main economic branch of the residents until the end of World War II. Until then, there were cooperatives in the village consisting of 15 to 25 members. For that reason, there are large stone houses in the village, which have been preserved to this day. There are specially built ovens in them, in which bread was baked for the numerous members. The village is divided into neighborhoods, and in the neighborhoods the houses are clustered close together [4].

In recent years, due to the relatively good traffic connection with the city of Skopje, the village of Gornjane is beginning to transform from a traditional economic village to a weekend village with houses built by people who live in the city.

Research methodology

The research is largely based on data collected through official statistics and fieldwork. For the first two of the five sustainability factors, the data were taken from the "Encyclopedia of the Villages of the Republic of Macedonia" by Mitko Panov (village atar) and from the censuses from the Second World War to the present day by the State Statistics Office (population).

For the remaining three sustainability factors, field recording was necessary to collect the data needed to conduct the research. During the visit to the village of Gornjane, data on the infrastructure was first collected from the local public services that are in charge of their maintenance. Then, interviews were conducted with local residents to get a clearer picture of the living conditions in the village and the real problems they face. The surveyed households were selected randomly, in order to obtain relevant information for the assessment of the existing situation. Finally, photographs were taken of the houses and agricultural buildings in the agricultural yards, and some of them were also documented through architectural recording.

Research results

The results of the research are systematized according to the five factors of sustainability, which are arranged sequentially and shown through the titles of the chapters.

1. Village atar

The village of Gornjane is located in the northern part of the Skopje Valley in the territory of the Municipality of Čučer-Sandevo, under the southwestern slope of Skopska Crna Gora. The village is hilly and is located at an altitude of 580 meters, and it is 17 kilometers away from the city of Skopje. The atar of the village of Gornjane covers an area of 11.4 km2. It is dominated by pastures with an area of 709.4 hectares, forests account for 255.5 hectares, and arable land 164.5 hectares [5].

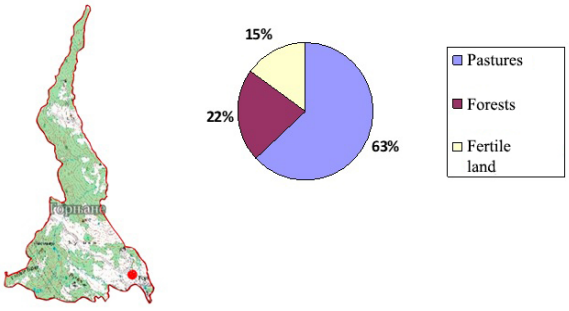


Figure 1: Gornjane village attar map and land use diagram

The village atar is extremely rich in pastures, which only confirms the fact that the village had an agricultural and pastoral function in the past. The shape of the village atar can be said to be unfavorable at first glance, but if we take into account that the forests cover mostly the northern part of the atar, then the pastures and arable land are 3-4 km away from

the center of the village. which is considered a favorable circumstance.

2. Population

In 1961, the village had 313 inhabitants, of which 174 were Macedonians and 139 Serbs, and in 1994 the number decreased significantly to only 93 inhabitants, of which 48 were Serbs, and 41 were Macedonians [6].

According to the last census of 2021, 80 inhabitants lived in the village of Gornjane, of which 51 were Macedonian and 29 were Serbs [7].

Table 1: Overview of the population in the village of Gornjane, according to the State Statistics Office in all census years

Year	1948	1953	1961	1971	1981	1991	1994	2002	2021
Population	369	384	313	184	107	90	93	80	80

According to the population number, the village of Gornjane belongs to the group of small villages. The population in the village from 1961 to 2002 has been constantly decreasing, but in the last 20 years the number of inhabitants has been constant, which can be a good prerequisite for an upward trend.

The population density is 7 inhabitants per hectare, which confirms the rural character of the village. The rural character is the biggest reason for the decrease in the number of the population, because young people often decide to leave the village in search of better conditions. In recent years, migration processes have halted, but this is not the result of systematic measures, but rather due to the fact that the majority of the young people have already left the village.

With gradual investment in rural development, conditions would be created for the young people to return to their homesteads and contribute themselves to the exploitation of the potentials offered by the village.

3. Infrastructure

The condition of the infrastructure systems in the village of Gornjane as a whole is at an unsatisfactory level. Although all houses in the village have access to electricity and clean drinking water, the biggest drawback in the village is the lack of a sewage network, which greatly reduces the quality of life. Households have septic tanks in their yards, but quite often they use the local stream to discharge the sewage, which, in addition to the environmental disaster, can also represent a potential hygiene and health hazard. The disposal of waste is organized at the beginning of the village and no wild dumps can be observed by the road, which means that the municipal services perform their work in a timely manner. The road network is very scarce, so apart from the main street through the village which is asphalted and in good condition, all other streets in the village are narrow due to the terrain and are in bad condition. Regarding access to television, internet and telephone, in one part of the village the quality of the signal is good, and in another part of the village, due to the configuration of the terrain, the signal is of worse quality.

Table 2: Infrastructure systems in the village of Gornjane

	Electricity	Drinking water	Sewage network	Waste	Road network	Television	Internet	Telephone
Household	●	●	▲	●	■	■	■	■

(●- developed/satisfactory, ■ - exists/unsatisfactory, ▲ - absent/problematic)

4. Living conditions

In the village of Gornjane there is a lack of contents of a social, cultural and health nature. Due to its position and size, there is no school, health center and post office, but of course the lack of a store with basic groceries is also a huge disadvantage, which is why the inhabitants of the village have to go to the neighboring village. There is one public building in the village, which houses the premises of the local community. In front of the village is the 'St. Nikita' monastery, which during weekends and holidays is visited by a large number of people from the surrounding villages and the city of Skopje, who come to socialize in the monastery's courtyard, but also to recreate and enjoy the beautiful nature and clean air. A small ethno-restaurant is open for visitors to the monastery and tourists in one of the houses. In recent years, a park with a cross has been established at the beginning of the village, which is used for gatherings of the residents of the village and for celebrating religious holidays.

Table 3: Program contents in the village of Gornjane

	School	Health institution	Post office	Store	Local community office	Church	Restaurant	Park
Village of Gornjane	▲	▲	▲	▲	■	●	■	●

(●- developed/satisfactory, ■ - exists/unsatisfactory, ▲ - absent/problematic)

5. Existing condition of agricultural yards and households

Regarding the agricultural yards, it can be noted that the size, shape and orientation do not pose a problem for the functioning of the households in the village. The mostly irregular shapes and small size of the agricultural yards represent an inherited condition due to the unplanned development of the village throughout its history.

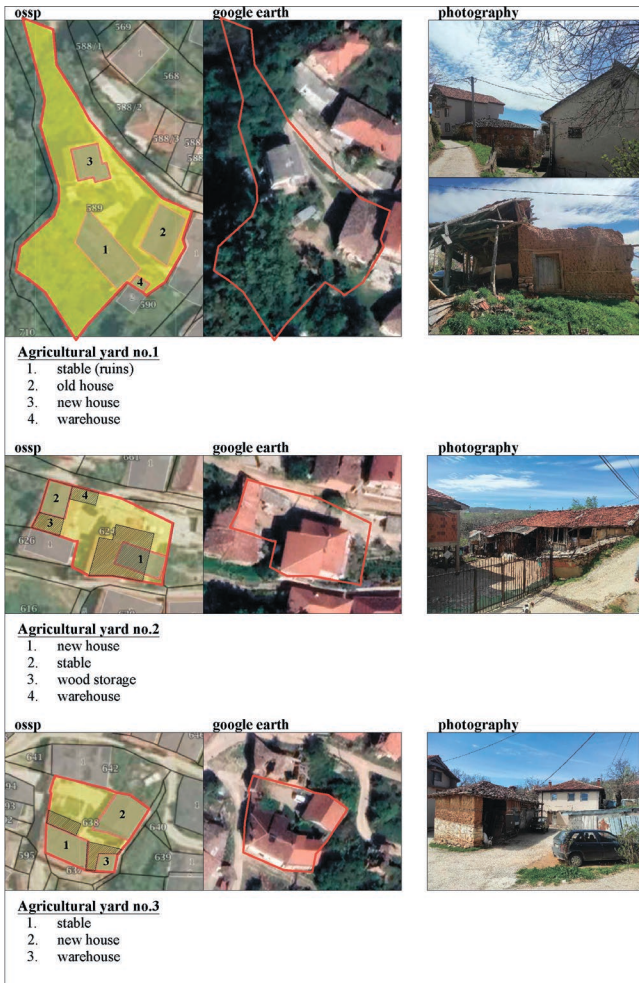


Figure 2: Situations and photos of several agricultural yards in the village of Gornjane

The majority of surveyed households are engaged in agriculture, but it is characteristic that the arable land is mostly in another location within the village atar. Only a small part of the households in the village are engaged in livestock farming and beekeeping. Those engaged in livestock farming usually raise goats and chickens for their own needs.

If the households are analyzed according to the configuration of the field, it can be noted that there are great similarities, but also certain differences regarding the organization of the agricultural yards. The agricultural yards are located on the slope overlooking Skopje, so the steep terrain is a limiting factor for arranging the residential, economic and gardening parts. A large number of them do not have a clear zoning of residential, economic, and gardening areas. Moreover, the gardening part in most cases is located on a different parcel within the village atar. In some agricultural yards, certain zoning can be noted, but it is always different depending on the program. The stable buildings are usually arranged along the perimeter of the yard.

Regarding the quality of the facilities, a great diversity is noticeable. There are housing structures from more recent times (from the 90s onwards) built from reinforced concrete construction and ceramic blocks.



Figure 3: Photos of newer housing facilities in the village of Gornjane (characteristic examples)

In the village, there is also a considerable number of older traditional houses in stone and timber frame construction, most of which are in poor condition and non-functional. With their renovation, the traditional ambient values of the village would be restored.



Figure 4: Photos of traditional architecture in the village of Gornjane (characteristic examples)

The households were analyzed in terms of the size and shape of the agricultural yards, the zoning of functional units, the program, as well as the condition of the constructed facilities in the yards.

A total of five households were surveyed, selected through a random sampling method to ensure a representative cross-section of rural household types in the village. The selection process considered factors such as household size in order to capture variations in land use and economic activity.

One of the main tasks was to assess whether the households are oriented toward an agricultural economy based on their physical layout and usage patterns or if they are economically dependent on non-agricultural employment, including jobs in the surrounding villages or in the city of Skopje.

During the data collection process, certain challenges emerged, including limited access to some properties, incomplete local records, and in few cases reluctance among residents to share detailed information. These issues were addressed through engagement with local community leaders and where necessary triangulation with secondary data sources. The collected data for households are given in Table 4.

Table 4: Presentation of the current state and sustainability of analyzed agricultural yards and households in the village of Gornjane, (small agricultural yard – up to 1000 m², large agricultural yard – over 1000 m²)

Agricultural yards and households	No. 1	No. 2	No. 3	No. 4	No.5
Size of the agricultural yards - m²	1507 (large)	571 (small)	434 (small)	651 (small)	672 (small)
Built surface of the agricultural yards - m²	311 (20%)	265 (46%)	254 (58%)	242 (37%)	156 (23%)
Shape of the agricultural yards	Irregular	Irregular	Regular	Irregular	Irregular
Zoning of functional units in the agricultural yards (resident./econom./garden)	1+1+0	1+1+0	1+1+0	1+0+0	1+1+1
Visible zoning	No	No	No	No	No
Quality og the buildings in the agricultural yards	Traditional and new building	Traditional and new building	Traditional and new building	New building	New building
Number of members in a household	2	4	3	2	2
Household type	Agricultural	Agricultural	Mixed	Non-agricultural	Agricultural

The overall impression about the households is that they reflect the economic situation in the largest number of villages in Macedonia. The economic crisis in the country affected the maintenance of facilities and the small number of newly built facilities according to the required standards. The courtyards are overloaded with temporary buildings, for which cheap construction material was used. It is noticeable that in the village in some of the households there are members who have not moved out, and are studying or working in the neighboring villages or in the city of Skopje, which can have a positive effect on the sustainable development of the village.

Conclusion

The village of Gornjane has a large untapped potential in pastures, forests and arable land. That potential should be the basis for the development perspective of the village, which should include livestock farming in the pastures, cultivation and collection of medicinal herbs, as well as production of organic food. All these things can further lead to the development of rural tourism.

The change in the production process and the adaptation to modern conditions would significantly affect the need for structural and functional reorganization and reconstruction of certain parts of the agricultural yards. This does not mean the complete abolition of traditional architectural elements and the urban matrix, but their transformation and adaptation to the new situation, which will emphasize the traditional values. Since the spatial and organizational potentials of almost all agricultural yards are limited due to their small size, most of them should undergo significant reconstructions to create space for new contents and facilities. In the case that the households would switch to the processing of medicinal herbs, this would mean the construction of new warehouses and dryers, and if they decide to develop rural tourism, of course the existing houses would have to be adapted or new houses built. As a consequence of these needs, it would be logical to move some of the stables and other production facilities to other properties of the households around the village, that is, if possible, to the peripheral parts of the village.

Of course, the biggest problems of the village of Gornjane are: the rural character, the unused and unadapted structure of the production of the existing resources, the weak economic situation and the underdeveloped infrastructure. Unlike some other villages, the decrease in population is not a dominant factor, although it is not to be neglected. If the village manages to overcome the problem of population reduction and keep young people in the village, with proper investment in the infrastructure, sustainable projects for the development of small businesses and rural tourism, the village has a good perspective and future in livestock farming, agriculture and tourism. In that case, the village will recover the lost agricultural-pastoral character of the past and will upgrade it with new elements of tourism and small businesses through an increased number of mixed households. If these things are not done, the village of Gornjane will face the fate of some other villages that no longer exist.

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